

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/18/2011 has been entered.

Response to Amendment

2. Applicant's amendments, filed 1/18/2011, have been fully considered and reviewed by the examiner. Claims 1, 3-13, 16-27, 29-33, and 37-38 are pending in the instant application.

In view of the amendment to the claims, the examiner has withdrawn the 35 USC 112 1st paragraph rejection.

Response to Arguments

3. Applicant's arguments filed 1/18/2011 have been fully considered but they are not persuasive.

The applicant has argued "the wood impregnation step and acetylating reaction step in the current application occur aggressively and simultaneously in one step" is clearly not commensurate in scope with the claims because these requirements are not found in the claims as drafted.

All other arguments are deemed moot because they are 1) newly added claim limitations that are addressed below, 2) not commensurate in scope with the claims as drafted or 3) unsupported by any factual evidence to support the argued position.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3, 6-13, 16-24, 31-33, and 37-38 are rejected under 35 U.S.C. 103(a) as being EP 0680810 A1, hereafter EP 810 in view of admitted state in the art (ASA) and "Boiling" and further in view of US Patent 4303705 by Kelso, Jr. hereafter Kelso.

EP 810 is applied here as applied in the prior rejection dated 2/4/2010 which is incorporated herein by reference. The examiner cites here "Boiling" to support the obviousness.

The examiner notes the EP 810 reference explicitly discloses application of a liquid solution, not a gaseous material, and the examiner maintains that the relationship between temperature and pressure are known result effective variables and it would have been obvious to one of ordinary skill in the art to apply pressure during the preheating step to maintain the solution in liquid state because one would reasonable expect predictable results in the modification and one would be motivated to provide a liquid medium to reap the benefit of reducing the boiling of the material and the loss of

gaseous material, i.e. reduction of unused gas material. The examiner cites here ASA which discloses the known boiling point of the acetic anhydride being less than the heated temperature as taught by EP 810 and "Boiling", which explicitly discloses the known relationship between the liquid phase and the pressure and the known relationship between the pressure and boiling point. In other words, increasing the pressure will increase the boiling point to maintain the liquid phase and at the very least increasing the pressure to maintain a liquid phase, i.e. by increasing the boiling point, would have been obvious to one of ordinary skill in the art at the time of the invention to reap the benefits of application of a liquid material.

Additionally, the examiner notes that the claims require the working solution is in liquid phase and not vapor phase, however, this clearly is met by application of the liquid solution as required by EP 810 because the solution is not a gaseous material. In other words, the claims require applying a working solution as a liquid, but any liquid solution is not in gaseous phase.

Regarding the requirement for draining while maintaining the elevated pressure and releasing the pressure to separate pressure kickback - EP 810 in view of ASA and Boiling discloses using pressure impregnation and draining excess fluid from the tank, but fails to explicitly disclose the newly claimed limitations. However, the examiner cites here Kelso, which discloses various features of pressure impregnation of wood. Specifically, Kelso discloses problems with pressure kickback (column 3 lines 20-25) and discloses the need and desire to minimize the amount of kickback liquid. To minimize the kickback, Kelso discloses a known process for draining treatment solution

after pressure impregnation includes:" the treatment liquid, after impregnation, is drained from contact with the wood while maintaining pressure to prevent kickback" (column 4, lines 2-5). Any pressure impregnation process will result in releasing pressure and this as taught by Kelso will result in "pressure kickback", which is any remaining working solution, waste or b-products". Additionally, Kelso discloses it is known to thereafter pull a vacuum at the end of the process to increase recovery of the treatment fluid and shorten the period of time during which the fluid will drip from the wood (Column 2, lines 1-5). Therefore, taking the references collectively, and for all that known to one of ordinary skill in the art at the time of the invention, it would have been obvious to perform various pressure techniques to minimize the pressure kickback as well as recover as much treatment solution as possible, including the techniques as taught by Kelso, i.e. drain while maintaining pressure, releasing pressure, and pulling a vacuum as required by the claims. Since these techniques will lead to predictable results as outlined by Kelso, such a modification would have been obvious to one of ordinary skill in the art. A predictable use of prior art elements according to their established functions to achieve a predictable result is prima facie obvious. See KSR Int'l Inc. v. Teleflex Inc., 127 S Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007).

Claims 34-36: EP 810 discloses 150° which is close to the range as claimed. A prima facie case of obviousness exists where the claimed ranges and prior art do not overlap but are close enough that one in ordinary skill in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 f.2d 775, 227 USPQ 773 (Fed. Cir. 1985). See MPEP 2144.05.

Claims 37-38: These claims are rejected for the same reasons as claim 21.

Claim 39-41: It is the examiners position that the wood chips are relatively large as required by the claims because as shown above in the 35 USC 112 2nd paragraph rejection, the applicant has failed to provide any reference point in the claims and therefore the chips as exemplified by EP 810 are relatively large compared to smaller chips, etc.

6. Claim 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 810 in view of ASA, "Boiling", and Kelso and further in view of US Patent 5679407 hereinafter US 407 or US Patent 4466998 hereinafter US 998.

EP 810 in view of "Boiling" discloses all that is taught above, including applying a pre-pressure to the chamber; however, the reference fails to disclose using a gas as claimed. However, US 407 discloses applying a pre-pressure to a wood prior to impregnation using N₂ gas and US 998 discloses providing pre-pressure using air. Therefore it would have been obvious to have modified in view of ASA and "Boiling" to have used N₂ or air gas to provide the pre-pressure because such is taught as known and suitable techniques in wood impregnation art to provide preliminary pressure prior to impregnation.

Claim 5: this claim is rejected for the reasons as set forth above.

7. Claims 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 810 in view of ASA, "Boiling", and Kelso and further in view of US Patent 3720661, hereinafter US 661.

Claims 25-26 and 34-36: EP 810 in view of ASA, "Boiling", and Kelso discloses all that is discussed above, and while the examiner maintains the position as above, the examiner cites US 661 which discloses applying a heated liquid solution of 150-220 to the wood in an acetylating process and therefore modification EP 810 in view of ASA, "Boiling", and Kelso to use the solution temperature as taught in the US 661 with a reasonable expectation of predictable results.

8. Claims 27, 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 810 in view of ASA, "Boiling", and Kelso and further in view of US Patent 6376582, hereinafter US 582.

Claims 27, 29-30: EP 810 in view of ASA, "Boiling", and Kelso discloses applying acetic anhydride solution to the wood, but fails to disclose a solvent of xylene, however, US 582 discloses the advantages of using xylene as a solvent for acetic anhydride include providing the reaction to proceed under more moderate conditions rather than the traditional exothermic conditions which will result in wood degradation. Therefore taking the references collectively, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified EP 810 in view of ASA, "Boiling", and Kelso to use xylene to achieve the benefit of reduction of wood degradation.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID TUROCY whose telephone number is (571)272-2940. The examiner can normally be reached on Monday-Friday, 7-5 a.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571) 272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David Turocy/
Primary Examiner, Art Unit 1717